

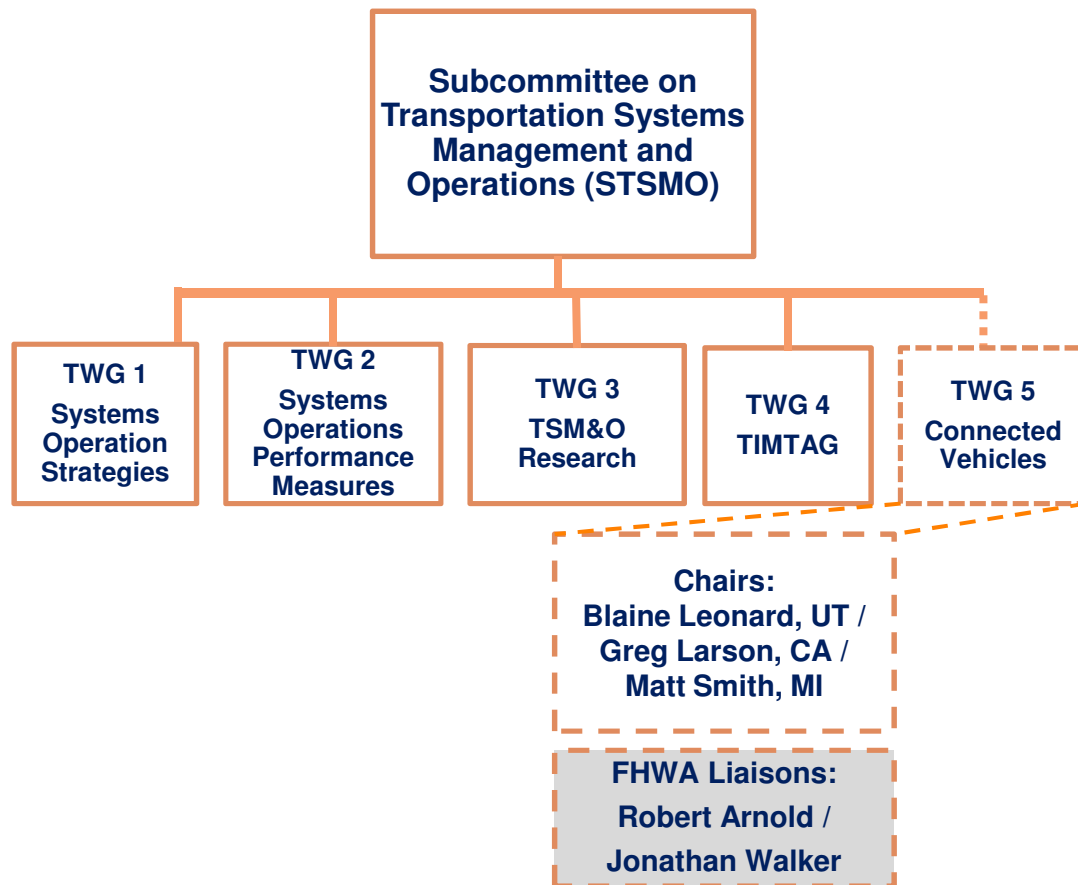


Connected and Automated Vehicle Program Plan

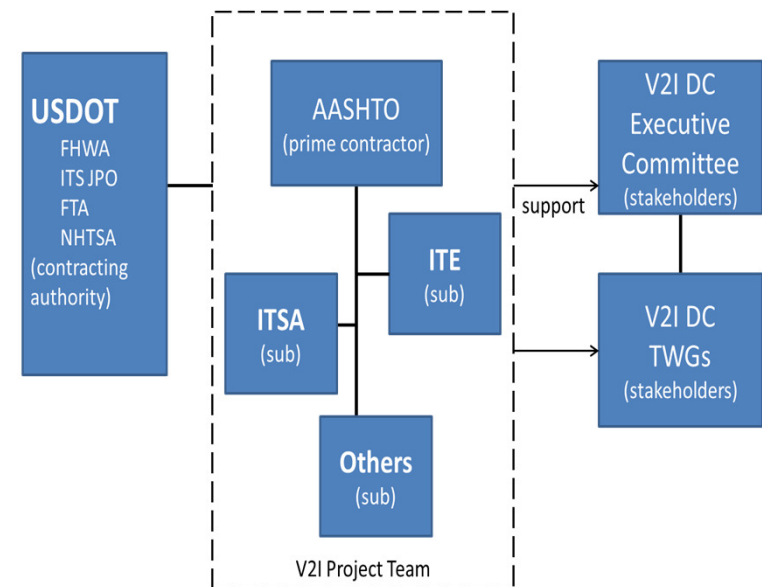
Dean H. Gustafson, PE, PTOE
VDOT Statewide Operations Engineer
February 10, 2016

Connected Vehicle Program continues to evolve at the National Level

AASHTO Connected Vehicle Working Group



Vehicle to Infrastructure Deployment Coalition (V2IDC)

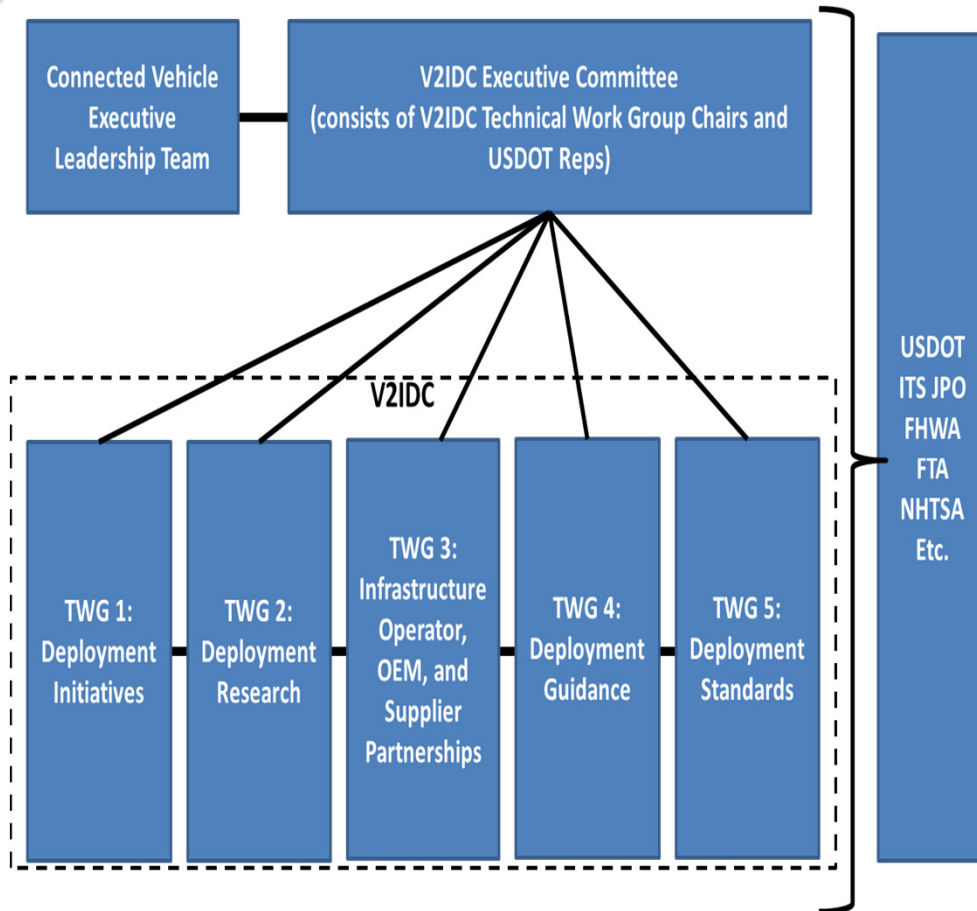


AASHTO Connected Vehicle Technical Working Group focused on State DOT's needs

- **Recently Became Part of STSMO TWG Structure**
 - Leadership is part of STSMO Executive Committee
 - Serves as core technical group for SCOH on CV, AV and other future technical programs
 - Interacts with other sub-committees under the Standing Committee On Highways (SCOH)

- **Role of STSMO TWG5 on Connected Vehicles**
 - Resource to AASHTO committees on CV and AV issues
 - Address issues and policies of interest to operating agencies
 - Chairs will update STSMO members on V2I DC activities
 - Continued coordination with the CV PFS

AASHTO will be integrated into multi-association V2I Deployment Coalition



V2I DC Expected to consist of about 45 people

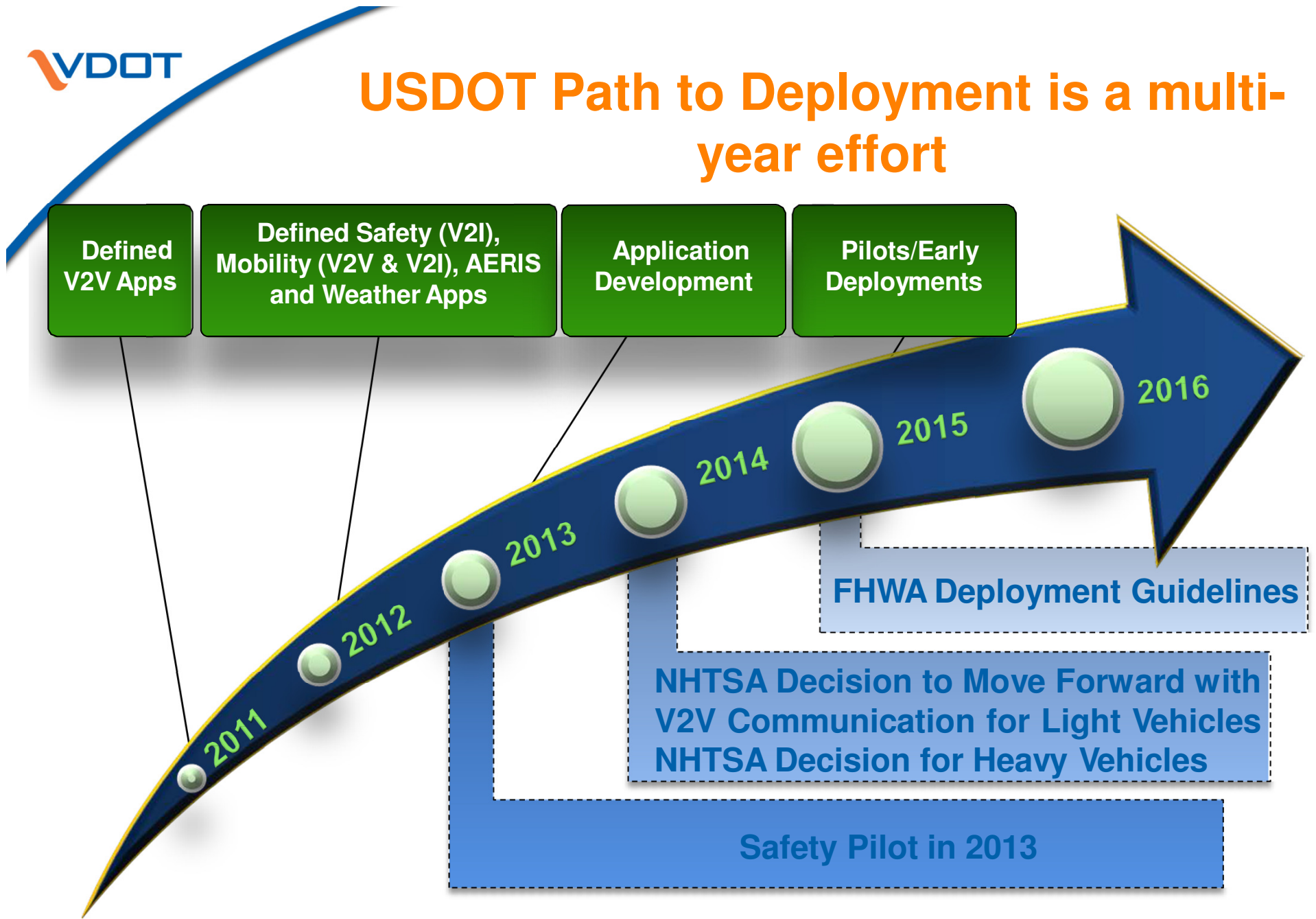
- **STSMO CV TWG Core members (former CV WG Members) will be invited to become V2IDC TWG members**
- **STSMO CV TWG Chairs will be part of the V2IDC Exec Committee**
- **TWGs will consist of members from USDOT, State DOTs, Infrastructure Owners, OEMs, and Trade Association members**

Connected Vehicle Pooled Fund Study is focused on deployment issues

- Since 2009, VDOT has been the lead state in a Pooled Fund Study to develop and evaluate Connected Vehicle technology and applications
- The program will prepare state and local transportation agencies for the deployment of Connected Vehicle technologies
- The Pooled Fund Study is in Phase II (July 2012 – December 2015) focusing on developing and field testing connected vehicle applications to determine benefits and lessons learned for large scale deployments
- Phase III (July 2015 – July 2017) – Will continue to focus research and development of connected vehicle applications



USDOT Path to Deployment is a multi-year effort





Connected Vehicle Program Plan

February 10, 2016

Connected Vehicle Program Plan

- VDOT's FY16 Business Plan calls for the development of a Statewide Connected Vehicle Program Plan
- Business Plan Item 3.2.2 (under Goal 3 – Operate):

Develop a statewide connected vehicle program plan to maximize the safety and operational benefits of these emerging technologies.

The capability of vehicles to communicate is here; vehicles can communicate with each other, with technology supporting infrastructure and ancillary assets (like signs and stoplights) and with other types of mobility devices like wheelchairs and bicycles. VDOT leadership will outline the department's vision of the future state of connected vehicle technologies, the impact of that future state on transportation within the commonwealth and define strategies that VDOT will plan to utilize to take advantage of the technology.



Connected Vehicle Program Plan

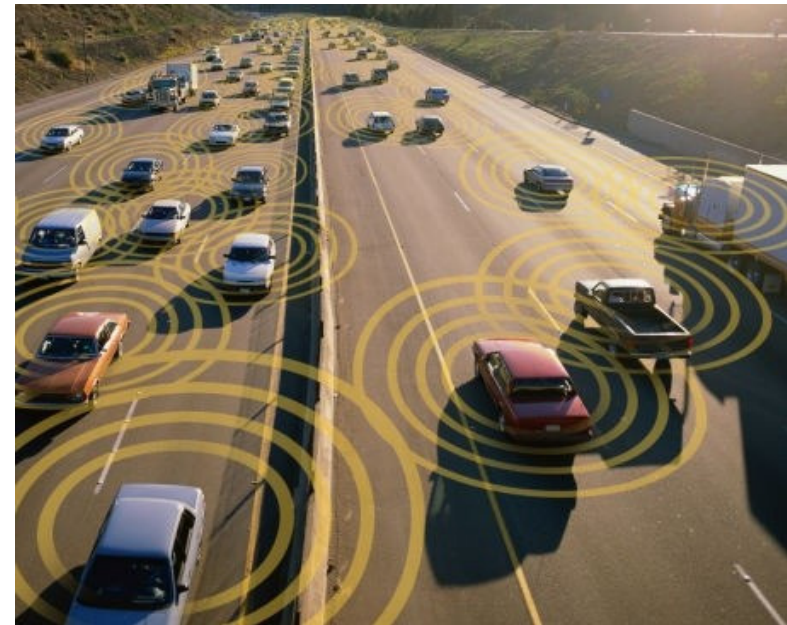
- **Milestones for the CV Program Plan:**
 - **Establish work plan for the development of the Statewide Connected Vehicle Program Plan – 10/31/15 (done)**
 - **Conduct internal and external stakeholder meetings – 12/30/15**
 - **Prepare draft Statewide Connected Vehicle Program Plan – 3/31/16**
 - **Obtain approvals to execute Statewide Connected Vehicle Program Plan – 6/30/16**

Connected Vehicle Program Plan

- **CV Program Plan – Expected Outcomes:**
 - **Clear vision of future state of connected vehicle technologies**
 - **Impact of that vision on transportation in the Commonwealth**
 - **Identification of strategies that VDOT will undertake to leverage CV technologies**
 - **Improved readiness to address changes in CV industry, such as proposed federal rulemaking and advances in private sector CV products and services**

Connected Vehicle Technology Provides Connectivity

- **Provide connectivity:**
 - **Among vehicles to enable crash prevention**
 - **Between vehicles and the infrastructure to enable safety, mobility, and environmental benefits**
 - **Among vehicles, infrastructure, and wireless devices to provide continuous real-time connectivity to all system users.**



Connected Vehicles can Improve Safety, Mobility and the Environment

- **Safety**

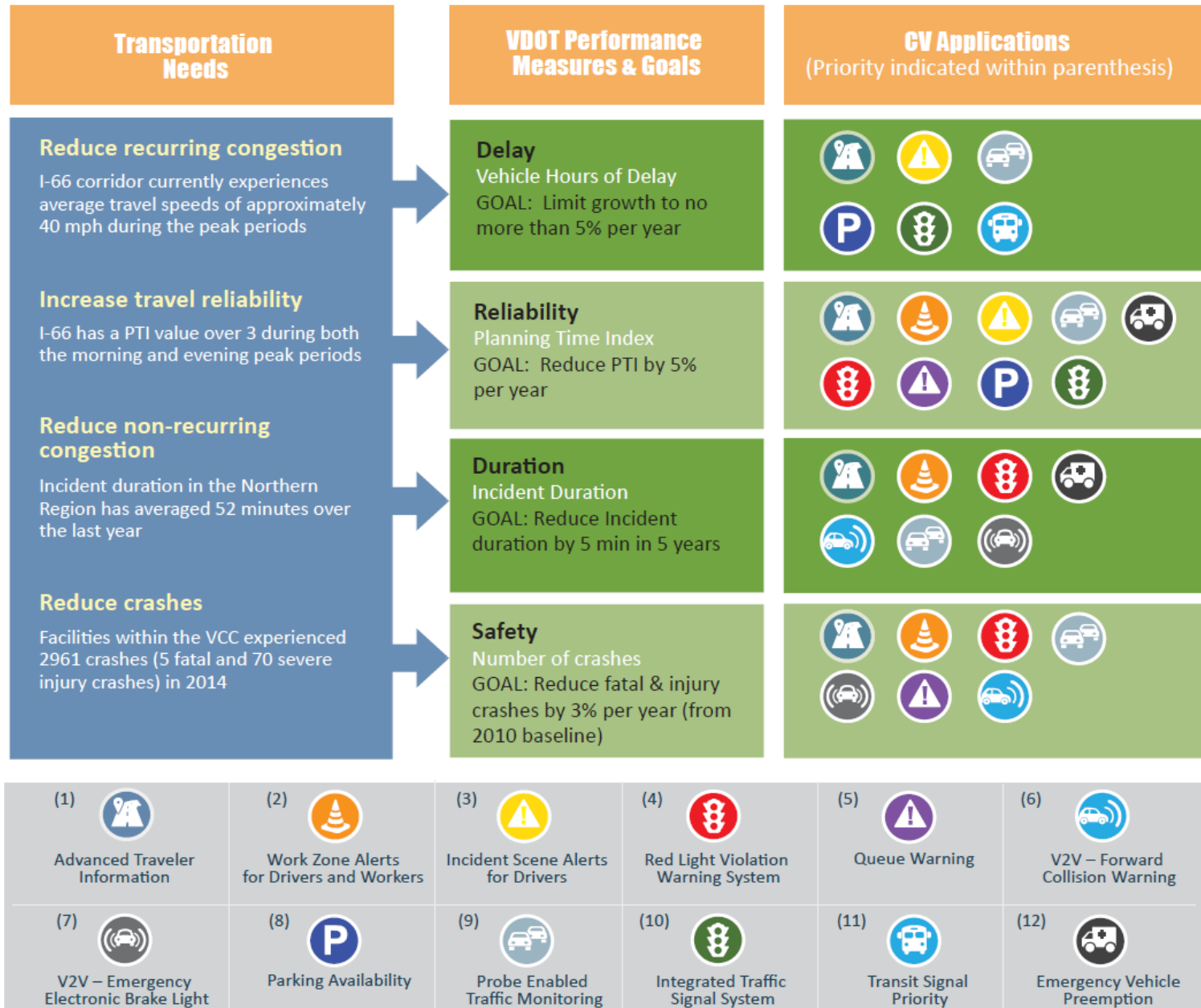
- “V2V technologies have the potential to address—by providing warnings to drivers— 76% of all potential multi-vehicle crashes involving at least one light-duty vehicle.” –GAO

- **Mobility**

- Testing in simulation has shown connected vehicle can reduce congestion through better ramp metering, traffic signal control, freeway merge assistance, and dynamic routing

- **Environment**

- Connected vehicles can give motorists and transportation managers the real time information they need to make “green” transportation choices and cut down on wasted fuel



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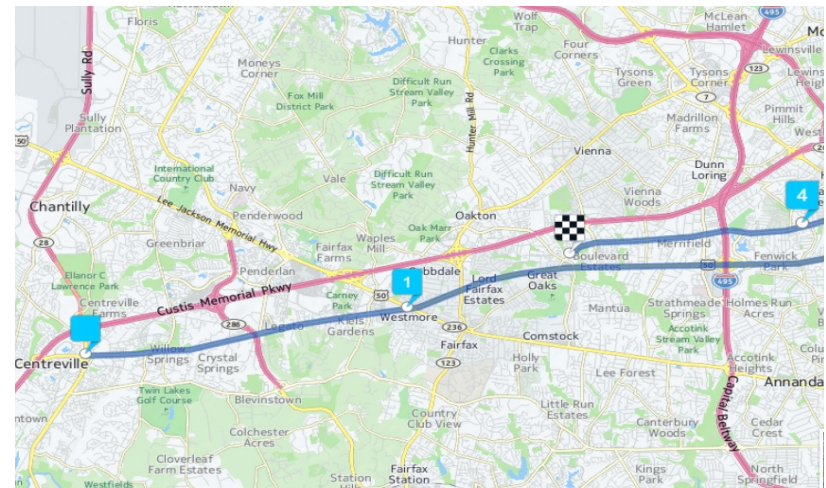
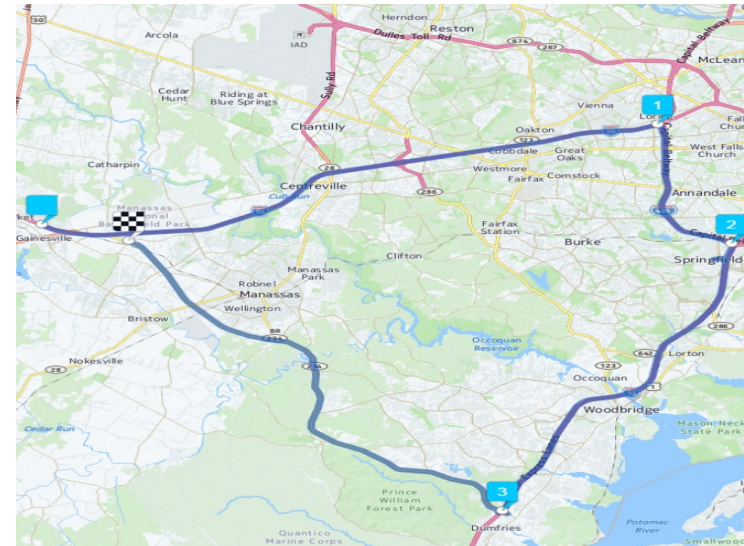


Virginia Connected Corridors is an Opportunity to Accelerate Deployment

- The VCC is focused on addressing several transportation challenges and providing opportunities to the CV industry
- In addition to CV technology, the VCC includes:
 - Support for third-party application development
 - Data services, Application Program Interfaces (APIs) and reference applications
 - Corridor visualization application
- The VCC will facilitate deployment and integration of connected vehicle data and applications into VDOT Operations

Virginia's Automated Corridor

- Partnership between VDOT, DMV, Here, Transurban and led by VTTI to enable advanced automated vehicle technologies in Virginia
- VDOT has committed to maintaining standards for completeness of marking and retro-reflectivity properties
- Automated Vehicle Demo held Oct 19-20



Automated Vehicles connected to the infrastructure could transform transportation

- How will automated vehicles transform transportation?
- What will transportation look like in the future?
- Where do VDOT and DRPT make investments to improve the transportation system?
- What is the role of government versus private sector?
- What applications will be most popular?



Guide to Planners

- **Get educated on the Connected and Automated Vehicle movement.**
- **Have a dialogue at MPO/PDC Technical Committee meetings, especially localities.**
- **Standards and interoperability will be critical.**
- **No clear impacts on transportation modeling.**
- **No projects to plan yet.**
- **Vehicle probe data will impact us today, CAV will impact us in the future.**
- **Help us drive solutions to transportation problems.**

THANK YOU!